

REMARKS

This is intended as a full and complete response to the Office Action dated February 5, 2010, having a shortened statutory period for response extended one-month set to expire on June 5, 2010. Please reconsider the claims pending in the application for reasons discussed below.

Claims 1-4, 9, 11, 18-19, 22-24, 26, 28, 30-31, 33, and 35-36 remain pending in the application and are shown above. Applicants have amended claims 1, 28, and 30 to further clarify the invention. Claims 1-4, 9, 11, 18-19, 22-24, 26, 28, 30-31, 33, and 35-36 stand rejected by the Examiner. Reconsideration of the rejected claims is requested for reasons presented below.

Claim Rejections Under 35 U.S.C. § 103

Claims 1-4, 9, 11, 18-19, 22-24, 26, 28, 30-31, 33, and 35-36 are rejected under 35 U.S.C. § 103(a) as being unpatentable over *Sieker, et al.* (U.S. Patent 6,403,665, hereinafter "*Sieker*") in view of *Bodnar, et al.* (U.S. Patent 5,143,945, hereinafter "*Bodnar*"). The Examiner asserts that *Sieker* discloses preparation of rigid polyurethane or urethane-modified polyisocyanurate foams by reacting isocyanates and isocyanate reactive materials, including polyester polyols at the claimed concentrations, in the presence of blowing agents that include the claimed functionalized carboxylic acids. The Examiner acknowledges that the claimed alkali metal salt trimerisation catalysts are not required in the process of *Sieker*, and concentrations or amounts thereof are not disclosed, but asserts that *Bodnar* discloses use of such catalysts, and that it would have been obvious to an ordinary artisan at the time of the invention to modify the process of *Sieker* with relevant teachings of *Bodnar* to yield the claimed invention.

Applicants have amended claims 1, 28, and 30 to further clarify the invention. Applicants submit that support for the amendments may be found at least on page 3, lines 4-27, page 5, lines 28-29, and in tables 1-3 of the specification.

Sieker teaches use of carboxylic acids functionalized with OH, SH, NH₂, or NHR groups, wherein R is an alkyl, cycloalkyl, or aryl group, as polyol blend components to stabilize the blend of polyols and tertiary amine catalysts (col. 1, lines 38-51).

According to Sieker, preferably at least 10%, more preferably at least 20% by weight of the total isocyanate-reactive compounds are polyester polyols (col. 4, lines 16-18). Sieker is silent as to flame spread of the polyurethane foam.

Bodnar does not supply the elements not taught by Sieker. Bodnar teaches use of carboxylic acid and halocarbon components in a blowing agent for a polyisocyanurate foam system (Abstract). The carboxylic acid of the blowing agent, generally disclosed as non-functionalized in Bodnar (col. 3, line 60 – col. 4, line 28) reacts with tertiary amines in the reaction mixture to create the blowing action (col. 4, lines 40-47). Bodnar is silent with respect to flame spread of the foam.

Applicants submit that the references do not teach, show, suggest, or make obvious the claimed invention recited in the amended claims. No reference teaches flame spread of not more than about 13 cm. Nor would the modification of Sieker with teachings of Bodnar necessarily achieve the claimed flame spread results, indicative of isocyanurate conversion.

Applicants therefore submit that Sieker and Bodnar, alone or combined, do not teach, show, suggest, or make obvious a process for preparing rigid urethane-modified polyisocyanurate foam comprising the step of reacting an organic polyisocyanate with a polyfunctional isocyanate-reactive component comprising at least 30 wt % of polyester polyols in the presence of a blowing agent, selected from the group consisting of alkanes, alkenes, and cycloalkanes, each having from 4 to 8 carbon atoms, a urethane catalyst, and a metal salt trimerisation catalyst characterized in that the process is carried out in the presence of a carboxylic acid that is functionalised with at least one OH, SH, NH₂, NHR, NO₂ or halogen functional group and R is an alkyl, cycloalkyl or aryl group, wherein the urethane catalyst is used in an amount ranging from 0.1 to 3.5 % by weight based on the isocyanate-reactive component and the metal salt trimerisation catalyst is used in an amount ranging from 0.4 to 4.5 % by weight based on the isocyanate-reactive component, and wherein the polyisocyanurate foam has a flame spread not more than about 13 cm, as recited in amended claim 1 and claims dependent thereon

Further, Sieker and Bodnar, alone or combined, do not teach, show, suggest, or make obvious a rigid urethane-modified polyisocyanurate foam having a flame spread not more than about 13 cm, the foam obtained by reacting an organic polyisocyanate with a

polyfunctional isocyanate-reactive component comprising at least 30 wt % of polyester polyols in the presence of a blowing agent, selected from the group consisting of alkanes, alkenes, and cycloalkanes, each having from 4 to 8 carbon atoms, a urethane catalyst, and a metal salt trimerisation catalyst characterized in that the process is carried out in the presence of a carboxylic acid functionalised with at least one OH, SH, NH₂, NHR, NO₂ or halogen functional group, wherein R is an alkyl, cycloalkyl or aryl group, wherein the urethane catalyst is used in an amount ranging from 0.1 to 3.5 % by weight based on the isocyanate-reactive component and the metal salt trimerisation catalyst is used in an amount ranging from 0.4 to 4.5 % by weight based on the isocyanate-reactive component, as recited in amended claim 28 and claims dependent thereon.

Moreover, Sieker and Bodnar, alone or combined, do not teach, show, suggest, or make obvious a process for preparing rigid urethane-modified polyisocyanurate foam comprising the step of reacting an organic polyisocyanate with a polyfunctional isocyanate-reactive component comprising at least 30 wt % of polyester polyols in the presence of a blowing agent and a metal salt trimerisation catalyst characterized in that the process is carried out in the presence of a functionalised carboxylic acid having at least one OH, SH, NH₂, NHR, NO₂, or halogen functional group, wherein R is an alkyl, cycloalkyl or aryl group and the metal salt trimerisation catalyst is used in an amount ranging from 0.5 to 5 % by weight based on the isocyanate-reactive component and the functionalised carboxylic acid is used in an amount ranging from 0.1 to 2 % by weight based on the isocyanate-reactive component, and wherein the polyisocyanurate foam has a flame spread of not more than about 13 cm, as recited in amended claim 30 and claims dependent thereon.

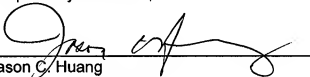
Applicants respectfully request the rejection be withdrawn.

Conclusion

In conclusion, the references cited by the Examiner, alone or in combination, do not teach, show, or suggest the invention as claimed.

Having addressed all issues set out in the office action, Applicants respectfully submit that the claims are in condition for allowance and respectfully request that the claims be allowed.

Respectfully submitted,

A handwritten signature in black ink, appearing to read 'Jason C. Huang', is written over a horizontal line.

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